

Application # 09/470,566  
Submitted January 14, 2005  
Reply to Office Action of July 14, 2004

### **III. REMARKS AND ARGUMENTS**

5. The Office Action dated July 14, 2004 has been carefully considered.

Reconsideration of this application, in view of the following remarks, is respectfully requested.

#### **A. References**

6. The following U.S. patents were considered in the office action:

- US Patent 5,047,853 ("Hoffert"), filed March 19, 1990.
- US Patent 6,384,862 ("Brusewitz"), filed March 12, 1997.

7. The following U.S. patent applications were also referenced in the office action:

- US Patent Application 09/312,922 (the "'922 Application").
- This application, US Patent Application 09/470,566 (the "'566 Application").

#### **B. Overview of Office Action**

8. The office action ¶1 acknowledges the new oath and declaration claiming priority benefits to the '922 Application.

9. The office action indicates that a declaration that states, "amendatory material consists of the same material incorporated by reference" is required. The office action further indicates that an election by original presentation should be made regarding 21-24. And thus rejected claims 21-24 under 35 U.S.C. 112.

10. The office action rejected claims 1-20 as being obvious in light of Hoffert in combination with Brusewitz under 35 U.S.C. 103(a).

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**C. Declaration Regarding Amendatory Material**

11. On page 2 of this paper, I have made another declaration regarding the May 3, 2004 amendment which states that the "amendatory material consists of the same material incorporated by reference" and that "no new matter was added."<sup>1</sup> Applicant respectfully submits that the response is now complete, and requests that the amendatory material including claims 21-24 be fully considered.

**D. Consideration of Claims 21-24**

12. Claims 21-24 contain the same language as claims 28-31 of the '922 Application. Claims 28-31 of the '922 Application have been cancelled in the '922 Application, and have been moved from the '922 Application to this the '566 Application. When they were moved to this application they were renumbered as 21-24. This has been communicated previously, for example, (paper no 9, page 17, section E).<sup>2</sup>

**E. Claims 21-24 Not Divergent**

13. Claims 21-24 are directed to the same subject matter as the other pending claims. Claim 21 is directed toward a compression method includes steps found in claim 1. Both Claim 1 and 21 select "a code based on a number of bits from each pixel" and then "run-length encod[e] repeated instances of said code." Claim 21 uses different terminology but describes the same steps. Both Claim 1 and 21 work on "each pixel". The "current line number" is a "code based on a number of bits from each pixel". If the "current line number" (code)

<sup>1</sup> Note this declaration was made previously in the May 3, 2004 reply. See ¶11 on page 3 of 4. "I hereby declare that the amendatory material consists of the same material incorporated by reference. No new matter has been added."

<sup>2</sup> "Note that claims 21 through 24 are the same as claims 28 through 31 that were submitted on 17 May 1999 with application 09/312,922 (with the correction of an obvious error in claim 28(c) now claim 21(c)." (Page 17, January 13, 2003 Amendment)

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“matches a previous line number of an immediately prior pixel” (i.e. is a “repeated instance” of the code), the “repeat counter” is incremented and “a repeat data structure with the repeat counter” is encoded, thus “run-length encoding repeated instances of the said code”. In both Claim 1 and 21 the encoded data forms a compressed “stream” of data (i.e. a buffer that is streamed).

14. Thus, claim 21 is not divergent from claim 1. Claims 22-24 are dependent on claim 21 and for the same reasons do not diverge from the other pending claims. Claim 24 adds decompression steps which claim the same subject matter as found in claim 8. Applicant submits that claims 21-24 are not divergent and no restriction or election is required.

15. Note: The amended specification contains a section (see pages 9 through 11) that correlates the terminology used in claims 1-20 with the terminology used in claims 21-24. This information should aid the examiner and others in understanding the correlation.

#### **F. Claim Rejections under 35 U.S.C. 112**

16. The office action at ¶3 rejected claims 21-24 under 35 U.S.C. 112 “as containing subject matter which was not described in the specification in such as way as to reasonable convey to one skilled in the relevant art that the inventor(s), at the time of the application was filed, had possession of the claimed inventions.” Applicant submits that the declaration regarding the amendatory matter is sufficient to overcome this rejection.

17. Further, Applicant points out that this, the ‘566 Application, claims priority based on the US Patent Application 60/113,276 filed December 23, 1998 (the “276 Application”), and based on the ‘922 Application which was filed on May 17, 1999. The May 17, 1999 filing (which included the language of current claims 21-24) clear shows that the inventors had possession of the invention as claimed in claims 21-24. This ‘566 application was

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filed December 22, 1999 and contains drawings that support the subject claimed by claim 21-24. Compare encode tables found on page 5 of the '276 Application, Fig 3A of the '922 Application, and Fig 3A of this '566 Application. Likewise compare the decode tables found on page 6 of the '276 Application, Fig 7 of the '922 Application, and Fig 7 of this '566 Application. The compression and decompression flow charts also show that the invention (as claimed by claim 21-24) was in our possession at least as early as December 23, 1998 and the specific terminology was used to describe these methods in the May 17, 1999, filing. Both of these show "that the inventor(s), at the time of the application was filed, had possession of the claimed invention".

**G. Claim Rejections under 35 U.S.C. 103**

18. The office action rejected claims 1-20 as being obvious in light of Hoffert in combination with Brusewitz under 35 U.S.C. 103(a).

**Hoffert Does Not Teach "selecting a code based on a number of bits from each pixel"**

19. The office action, after ¶12 states "Hoffert '853 teaches (i.e. col. 6, lines 22-55) selecting a type of encoding based on the luminance associated with each pixel with respect to [a] mean pixel valued, which meets the limitation as claimed." Applicant disagrees. The office action misunderstands Hoffert; it does not teach what the examiner relies upon it as supposedly teaching. The office action relies on Fig 2 for teaching applicant's "selecting a code based on a number of bits from each pixel selected from said pixels".

20. Hoffert teaches selecting type of encoding from a group of four binary codes, i.e. 00, 01, 10, and 11 (see Hoffert Fig. 2). The cited reference (Hoffert 6:22-55) describes the 00 coding and the 10 coding types. The 00 code represents a block of 16 pixels which each have the same color, i.e. "4x4 pixel block of one color" (Hoffert, Fig 2). The 10

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code also represents a block of 16 pixels which have "one of two diverse colors" (Hoffert 6:46) where the "data for the block is stored as two colors and a single 16 bit map..." (Hoffert 6:35-36), i.e. "block of two colors"

21. There is a number of distinctions between Hoffert and the claim language "selecting a code based on a number of bits from each pixel":

- Hoffert's method is block based not pixel based
- Hoffert has one code for each block, not a code for each pixel
- Hoffert does not select a code based on a number of bits from pixel
- Hoffert's codes specify a type of encoding that does not vary based on pixel value

Each of these distinctions will be discussed further in the following sections.

#### **Hoffert's Method is Block Based not Pixel Based**

22. Hoffert, like many conventional compression algorithms is block based. Hoffert works on blocks of sixteen pixels in 4 x 4 blocks. Before Hoffert's compression method can even start at least four lines of the image must be received. "In order for this to be implemented, buffering is used to store four scan lines of pixel data so that 4 x 4 blocks can then be considered." (Hoffert 3:25-27) Applicant's method is pixel based. Hoffert teaches away from pixel based compression. *This major distinction alone should overcome the obviousness argument.* Because applicant's method is pixel-based it can determine a code as soon as few as two pixels (for example, in a 640x480 image) have been received. Hoffert in contrast would have to receive the whole images (or at least four lines of the images which could be thousands of pixels, eg. 640 x 4 = 2560 pixels). In this example, only after receive thousands of pixels could Hoffert break them into blocks and start processing the blocks.

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**Hoffert Has One Code for Each Block, not a Code for Each Pixel**

23. Close reading of Hoffert will show another distinction. Hoffert will only select one code per each block of 16 pixels. In contrast, Applicant's invention will select a code for each pixel. *Thus, Hoffert does not teach the limitation as claimed.*

**Hoffert Does Not Select a Code Based on a Number of Bits from Each Pixel**

24. Applicant's invention selects a code that based on a number of bits selected from each pixel. The code is directly related to the pixel value, either through extraction (e.g. claim 4, Fig 2D-2F, Fig 8) or through table lookup (e.g. claim 5, Fig 3A-3B). In claim 4, "the number of bits is five and said code is determined by extracting the five most significant bits from each pixel". In claim 5, "the number of bits is five and said code is obtained from an encode table." In claim 15, the "pixel values" are directly related to the code values. Hoffert simply does not teach that the code is "based on a number of bits from each pixel". Instead Hoffert teaches a code that is unrelated to the values of the bits from each pixel but is based on the determination of a single color for the block, a determination of two colors for a block, and so forth. *Thus, Hoffert does not teach the limitation as claimed.*

**Hoffert's Codes Specify a Type of Encoding That Does Not Vary Based on Pixel Value.**

25. Applicant's invention selects a code that based on a number of bits selected from each pixel (claim 1) and on a pixel value (claim 15). In contrast, Hoffert teaches only four binary codes, where is code specifies a type of encoding, not the value of the pixel bits. A 00 code will be used when all 16 pixels have the same color, for example black (all the bits are 1s, i.e. 11111111111111111111). The same 00 code will be used when all the 16 pixels

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have the same white color (all the bits are 0s, i.e. 000000000000000000000000). Thus the 00 code is not based on the value of the pixel.

26. Applicant's invention works differently. In the claim 5 embodiment, in reference to Fig 3A, a black pixel (i.e. 11111111111111111111) would be reduced to 8 bits (i.e. 11111111 binary or 255 decimal, see e.g. Fig 2G and 2H) and would result in a code of five bit code (i.e. 31 decimal) (last line of Fig 3A, line 31 of Fig 3B). The code is directly related to the pixel value in this case through table lookup. Further, a white pixel (i.e. 000000000000000000000000) would be reduced to 8 bits (i.e. 00000000 binary or 0 decimal, and would result in a code of five bit code (i.e. 0 decimal) (first line of Fig 3A, line 0 of Fig 3B). Thus a black pixel value would result in a code of 31 and a white pixel value would result in a code of 0. This is what is meant by the limitation "selecting a code based on a number of bits from each pixel." *Hoffert does not teach this.* Instead Hoffert teaches that the same code 00 will be selected regardless of the value of a "number of bits for each pixel" (claim 1) or "pixel value" codes (claim 15). In this regard Hoffert teaches away from the claimed invention. *Thus, Hoffert does not teach the limitation as claimed.*

#### Claim 1 Not Made Obvious by Hoffert in View of Brusewitz

27. As stated above Hoffert does not teach "selecting a code based on a number of bits from each pixel".

28. Further, Hoffert does not teach "run-length encoding repeated instances of said code." The office action cites Hoffert Fig 10, 107 as teaching this claim element. The cited figure is a "run-length decrementer". While this uses the word run-length, it fails to teach "run length *encoding*" as required by the claim. Further, it fails to teach the full claim limitation, namely, "run-length encoding repeated instances of said code". Said code refers to the "code

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based on a number of bits from each pixel" which, as explained above Hoffert does not teach. Hoffert cannot teach run-length encoding of "said code" because it does not teach said code. Instead Hoffert teaches run-length encoding of multiple ["Blocks of same color (run length blocks)" Fig 2, 01]. In this regard Hoffert teaches away from the limitation as claimed.

29. Further, Hoffert does not teach "repeating steps (b) and (c) until *each said pixel* is encoded." As discussed above, Hoffert does not perform its steps on pixels but on blocks of pixels. Therefore Hoffert does not teach repeating the pixel-based steps.

30. Further, the office action states "streaming buffer is an inherent feature necessitated by the digital video processing". The use of an "encoded data buffer" to hold all of the encoded data for an entire image is *not inherent*. In fact, many of the conventional block based compression methods, store only a block, or subset of blocks, from an image and then stream the encoded data for less than a block. Alternatively, a fixed sized buffer can be used, which is only stored or transmitted when the buffer is full. In this alternative, multiple images may be stored in the buffer before the buffer is streamed. Hoffert does not teach this claim limitation and it is not inherent.

31. Hoffert does not teach "sub-sampling pixels from an image". The office action relies on Brusewitz for this teaching, citing Brusewitz Fig 1, sub-sampler 20, 1:41+. The office action has not clearly indicated the basis of this teaching. The subsampler 18 in Fig. 1 is not part of the encoder 20 and thus is not part of the compression method.

32. Thus, if the teaching of Hoffert were combined with Brusewitz, it would not result in the claimed invention, because, as discussed above, Hoffert does not teach many of the claimed elements.



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**Combination of Hoffert and Brusewitz is Improper**

33. As explained above, in my January 13, 2003, Amendment,

- Hoffert and Brusewitz teach away from the present invention.
- Hoffert and Brusewitz combined do not teach the invention.
- Hoffert and Brusewitz do not contain any justification to support their combination, much less in the manner proposed. The references themselves must suggest that they be combined (In re Senaker). There must be some reason for the combination other than hindsight gleaned from applicant's invention. (Uniroyal, Inc. v. Rudkin-Wiley Corp.)
- Hoffert and Brusewitz are individually complete.
- Hoffert and Brusewitz are from different fields as evidenced by different US classes and fields of search.

**Claim 15 Not Made Obvious by Hoffert in View of Brusewitz**

34. As stated above in regard to claim 1 Hoffert in view of Brusewitz fail to teach the limitations of claim 1. The office action failed to provide a separate analysis of claim 15. As discussed above, claim 15 has different limitations, such as "a video digitizer", a "video memory", "run length encoding circuit for counting repeated instances of a pixel value when scanning".

35. Neither Hoffert nor Brusewitz teach "counting repeated instances of a pixel value when scanning". As discussed above, because Hoffert teaches away from processing pixels "when scanning." Instead Hoffert teaches "In order for this to be implemented, buffering is used to store four scan lines of pixel data so that 4 x 4 blocks can then be considered." (Hoffert 3:25-27) Hoffert fails to teach this claim limitation and instead teaches that the pixels should be

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processed as blocks after scanning is complete. This is a major distinction between Applicant's invention and the conventional block-based compression methods.

**Claims 2 and 3 Not Made Obvious by Hoffert in View of Brusewitz**

36. Claims 2 and 3 are dependent on claim 1 and, therefore claims 2 and 3 should be patentable for all the reasons stated in relation to claim 1.

**Claims 4 and 5 Not Made Obvious by Hoffert in View of Brusewitz**

37. Claims 4 and 5 are dependent on claim 1 and, therefore claims 4 and 5 should be patentable for all the reasons stated in relation to claim 1.

38. Further, as discussed above Hoffert does not teach "a number of bits from each pixel"; therefore Hoffert cannot teach that "said number of bits is five". The office action failed to provide a basis for a rejection for the limitations where "said code is determined by extracting the five most significant bits from each pixel" (claim 4) and where "said code is obtained from an encode table" (claim 5). Neither Hoffert nor Brusewitz teach these claim limitations.

**Claims 6 and 7 Not Made Obvious by Hoffert in View of Brusewitz**

39. Claims 6 and 7 are dependent on claim 6 (either directly or indirectly) and, therefore claims 6 and 7 should be patentable for all the reasons stated in relation to claim 1.

40. The office action cites to Hoffert Fig 1 to teach "an encoded video signal comprises a series of said encoded data buffers." Hoffert Fig 1 is a single word showing the adapting coding format. Hoffert fails to teach a "series of said encoded data buffers" where each "encoded data buffer" contains the encoded data for an image (claim 1).

41. The office action cites to Brusewitz Fig 1, 22 and 30, to teach "an encoded video signal compris[ing] a series of said encoded data buffers." Brusewitz Fig 1, 22 and 30

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show two boxes labeled "buffer". However, these are not "a series of said encoded data buffers". Brusewitz teaches that "control unit 24 also governs the variable bit rate of the information flow into buffer 22 to maintain a particular data level and avoid both overflow and underflow therein." (Brusewitz 2:29-32) and "As is understood in this art, the primary purpose of buffer 22 is to regulate the flow of data from the encoder 20 and forward that data at a fixed rate across a transmission channel 26 to a receiver device 28, particularly, to another buffer 30 therein, which like buffer 22 acts as a reservoir storing the data and regulating its use." (Brusewitz 2:33-37)

42. There are two meanings of the word "buffer" as used in the art. The first meaning as used by Brusewitz, which is "a circuit or device that is put between two others to smooth changes in rate or level or allow asynchronous operation" (Oxford Dictionary of Computing, 1997). The second is the meaning used by many C programmers, which is "an area of memory" or "an array of bytes". For example, Microsoft teaches "Buffer manipulation routines [e.g. memcpy and memset] are used with areas of memory on a character-by-character basis. Buffers are arrays of characters (bytes)." (pp. 345-346, C for Yourself, 1990). Having programmed an embodiment of the invention in the C programming language, in drafting the claims, I used and intended the second meaning and not the first. Thus the term "encoded data buffer" should be understood to mean "an array of bytes containing the encoded data for an image". Brusewitz fails to teach a "series of said encoded data buffers" where each "encoded data buffer" contains the encoded data for an image. In this regard, Brusewitz teaches away from Applicant's invention, in that Brusewitz teaches flow control type buffering.

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**Claim 8 Not Made Obvious by Hoffert in View of Brusewitz**

43. Claim 8 is the decompression part of claim 1. Since neither Hoffert nor Brusewitz, nor their combination teach the compression of claim 1, they likewise fail to teach the decompression of claim 1.

**Claims 9-12 and 19-20 Not Made Obvious by Hoffert in View of Brusewitz**

44. The office action rejects claims 9-12 and 19-20 based on their similarity to claims 2-5, 8, and 15. For all the reasons stated in regard to claims 2-5, 8, and 15, claims 9-12 and 19-20 are not made obvious by Hoffert and Brusewitz.

**Claims 13-14 and 16 Not Made Obvious by Hoffert in View of Brusewitz**

45. The office action rejects claims 13-14 and 16 based on the four binary codes in Hoffert (Fig 2, and Fig 3 19, 23, 25, 29, and 33). As discussed at length at the top of this section above, these codes are not the same as Applicant's codes that are based on the bits that indicate the pixel value. Therefore, Hoffert does not teach the applicant's encode table, decode table, or encryption table.

**Claims 17 and 18 Not Made Obvious by Hoffert in View of Brusewitz**

46. Claims 17 and 18 are dependent on claim 15 and, therefore claims 17 and 18 should be patentable for all the reasons stated in relation to claim 15.

**Claims 21 through 24 Not Anticipated or Made Obvious by Hoffert in View of Brusewitz**

47. As discussed above claim 21 is directed to the same subject matter as claim 1. Claims 22 through 24 are dependent on claim 21. Therefore claims 21 through 24 should be patentable for all the reasons stated above in relation to claims 1-20.

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**IV. New Claims**

48. Claims 25-37 are presented with this amendment. Claim 25 covers the same scope as claim 1 and claims 26-37 are depended on claim 25. Therefore, these claims should not require an election or restriction.

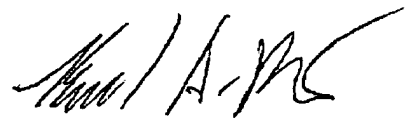
49. Claims 25-37 are presented to more distinctly claim the subject matter. No new matter is added. These claims are not being added to overcome prior art.

50. Applicant submits that claims 25-37 are patentable as written.

**V. Reconsideration Requested**

51. The undersigned respectfully submits that, in view of the earlier response and the foregoing remarks, the rejections of the claims raised in the Office Action have been fully addressed and overcome, and the present application is believed to be in condition for allowance. It is respectfully requested that this application be reconsidered, that these claims be allowed, and that this case be passed to issue. If it is believed that a telephone conversation would expedite the prosecution of the present application, or clarify matters with regard to its allowance, the Examiner is invited to call the undersigned inventor at 408-739-9517.

Respectfully submitted,



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